convincing evidence that this has any implications for subsequent morbidity let alone mortality.

If we had serious concern over such effects, the best way to evaluate them would be by large cluster randomised trials of different vaccine formulations, or of standard vaccines given according to different schedules. We could contemplate such trials for reasons of overall direct as well as indirect effects. The standard vaccines change over time, and the most widely used timetable (BČG/oral polio vaccine at birth, DTP/OPV at 6, 10, and 14 weeks of age, measles after 9 months) was set 30 years ago at the start of the World Health Organization's expanded programme on immunisation as an optimal compromise considering the vaccines then in use, the disease risks then prevailing, and logistic considerations concerning paediatric clinic policies for children of that era. But much has changed-new vaccines and vaccine formulations, lowered disease risks (largely due to widespread vaccination), and changed child health regimens, which now include micronutrients in many countries. We may need to reconsider the optimal basic schedule for delivery of vaccines and other services to the world's children, and we need to evaluate them if possible with trials-not with observational studies with biased data.

Paul E M Fine professor of communicable disease epidemiology

London School of Hygiene and Tropical Medicine, London WC1 7HT (Paul.Fine@lshtm.ac.uk)

Competing interests: PF has attended several conferences on vaccines, which were subsidised by manufacturers of vaccines.

- 1 Vaugelade J, Pinchinat S, Guiella G, Elguero E, Simondon F. Non-specific effects of vaccination on child survival: prospective cohort study in Burkina Faso. BMJ 2004;329:1309-11.
- Fine PEM, Carneiro IAM, Milstein JB, Clements CJ. Issues relating to the use of BCG in immunization programmes: a discussion document. www.who.int/vaccines-documents/DocsPDF99/www9943.pdf (accessed 30 Nov 2004). (WHO/V&B/99.23, 1999.)
- Arness MK, Eckart RE, Love SS, Atwood JE, Wells TS, Engler RJ, et al. Myopericarditis following smallpox vaccination. Am J Epidemiol 2004;160:642-51.
- Aaby P, Knudson K, Whittle H, Tharup J, Poulsen A, Sodemann M, et al.
- Long term survival after Edmunston-Zagreb measles vaccination: increased female mortality. *J Pediatr* 1993;122:904-8.

  Aaby P, Shaheen S, Heyes C, Goudiaby A, Shiell A, Jensen H, et al. BCG vaccination and reduction of atopy in Guinea Bissau. *Clin Exp Allergy* 2000:8:644-50.
- Aaby P, Samb B, Cisse, Simondon F, Seck AM, Knudson K, Whittle H. Non-specific beneficial effects of measles immunization: analysis of mortality studies from developing countries. *BMJ* 1995;311:481-5.

  Krause TG, Hviid A, Koch A, Friborg J, Hjuler T, Wohlfahrt J, et al. BCG
- vaccination and risk of atopy. *JAMA* 2003;289:1012-5. Aaby P, Jensen H, Samb B, Cisse B, Sodemann M, Jakobsen M, et al. Differences in female-male mortality after high-titre measles vaccine and association with subsequent vaccination with diphtheria-tetanuspertussis and inactivated poliovirus: reanalysis of West African studies. Lancet 2003;361:2169-70.
- Kristensen I, Aaby P, Jensen H. Routine vaccinations and childhood survival: follow-up study in Guinea-Bissau, West Africa. *BMJ* 2000;321:1-8.
- 10 WHO Task Force on Routine Infant Vaccination and Child Survival.

  Report of a meeting to review evidence for a deleterious effect of DPT vaccination on child survival. London, 2004. www.who.int/vaccine\_safety/topics/dtp/en/taskforce\_report.pdf (accessed 30 Nov 2004).

  11 Fine PEM, Chen RT. Confounding in studies of adverse reactions of vaccine.
- cines. *Am J Epidemiol* 1992;136:121-35. 12 Ota MO, Vekemans J, Schlegel-Haueter SE, Fielding K, Sanneh M, Kidd M, et al. Influence of Mycobacterium bovis bacillus Calmette-Guerin on antibody and cytokine responses to human neonatal vaccination. *J Immu*nol 2002:168:919-25.

## Suicide pacts and the internet

Complete strangers may make cyberspace pacts

The recent deaths of nine people in Japan, in October 2004, apparently in two suicide pacts1-seven suicides in one pact and two in the other-have brought the relatively rare phenomenon of suicide pacts into the limelight. What is unusual is that these pacts seem to have been arranged between strangers who met over the internet and planned the tragedy via special suicide websites. This is in contrast to traditional suicide pacts, in which the victims are people with close relationships.

A suicide pact is an agreement between two or more people to commit suicide together at a given place and time. In England and Wales, for epidemiological purposes, people who have committed suicide within three days of each other in the same registration subdistrict are considered potential victims of a suicide pact.2 A related phenomenon is homicide-suicide, in which a person commits a murder and then ends his or her own life. Dyadic death is a term that encompasses both suicide pacts and homicide-suicides.3 A suicide cluster is a group of suicides that occur closer together in time and space than would normally be expected in a given community, with suicides occurring later in the cluster being motivated by earlier suicides. In mass suicide, several people commit suicide usually influenced by charismatic leadership, strong loyalties, or religious beliefs.

Two major epidemiological studies on suicide pacts have been carried out in England and Wales, 36 years apart.2 4 The second study showed that the incidence of suicide pacts had declined by 27% in that period.2 On average, one suicide pact occurs every month. Suicide pacts almost always involve people well known to each other, mostly spouses, most of them childless. Most of the victims belong to social classes I, II, and III, and a noteworthy proportion work in professions allied to medicine. The methods used are generally less violent; poisoning by exhaust fumes from a vehicle is the most common. But where access to violent means is easier, such as firearms in the United States, suicide pacts entail more violent methods.5 Most victims leave jointly signed suicide notes.

Although, by definition, both victims make a joint decision to die in a suicide pact, studies of survivors of pacts have shown that this is not always the case.<sup>6</sup> In cases where the decision was not mutual, the deceased member is likely to have been the instigator, male, depressed, and to have had a history of self harm, whereas the survivor is likely to be the coerced, female, not mentally ill, and with no previous history of self harm

Suicide pacts account for less than 1% of the total number of suicides.2 4 Both members typically employ the same method. Occasionally, the partners may both use multiple methods to ensure death.7 About

BMJ 2004;329:1298-9

half have psychiatric disorders and a third have physical illnesses.8 In an international comparison of suicide pacts, pacts between spouses were found to predominate in the United States and England, between lovers in Japan, and between friends in India.9 The relationship between victims of suicide pacts is typically exclusive, isolated from others, and the immediate trigger for the pact is usually a threat to the continuation of the relationship, for example, impending death of one member from an untreatable physical illness.10

Suicide pacts have been associated with a rare psychiatric disorder called *folie à deux.*<sup>11</sup> In this condition, two people share the same or similar delusional beliefs. The relationship among people with this psychotic disorder is also usually enmeshed and isolated from the rest of society. Just as in some suicide pacts where one person instigates the plan, in *folie à deux* the delusion is characteristically imposed by the dominant member of the relationship on to the other person. While suicide pacts are usually seen between spouses, folie à deux is commoner among sisters, usually spinsters.

The potential negative role of the internet in relation to suicides has been highlighted previously.12 An increasing number of websites graphically describe suicide methods, including details of doses of medication that would be fatal in overdose. Such websites can perhaps trigger suicidal behaviour in predisposed individuals, particularly adolescents.<sup>13</sup> Cybersuicide refers to suicides or suicide attempts influenced by the internet. Scientific literature on cybersuicide mainly pertains to solitary suicides, and little information exists about the internet and suicide pacts.

The recent suicide pacts in Japan might just be isolated events in a country that has even previously been shown to have the highest rate of suicide pacts.9 Alternatively, they might herald a new disturbing trend in suicide pacts, with more such incidents, involving

strangers meeting over the internet, becoming increasingly common. If the latter is the case then the epidemiology of suicide pacts is likely to change, with more young people living on their own, who may have otherwise committed suicide alone, joining with like minded suicidal persons to die together.

General practitioners and psychiatrists should continue to remain vigilant against the small but not insignificant risk of suicide pacts, especially while encountering middle aged depressed men who have dependent submissive partners. While assessing risk, one may specifically ask whether a depressed patient uses the internet to obtain information about suicide.

## Sundararajan Rajagopal consultant psychiatrist

South London and Maudsley NHS Trust, Adamson Centre for Mental Health, St Thomas's Hospital, London SE1 7EH (Sundararajan.Rajagopal@slam.nhs.uk)

Competing interests: None declared.

- 1 BBC News Online. Nine die in Japan "suicide pacts." http://news.bbc.co.uk/1/hi/world/asia-pacific/3735372.stm (accessed 16 Nov
- Brown M, Barraclough B. Epidemiology of suicide pacts in England and Wales, 1988-92. BMI 1997;315;286-7.
- Berman AL. Dyadic death: a typology. Suicide Life Threat Behav 1996:26:342-50.
- Cohen J. A study of suicide pacts. Medico-legal J 1961;29:144-51
- Fishbain DA, D'Achille L, Barsky S, Aldrich TE. A controlled study of suicide pacts. J Clin Psychiatry 1984;45:154-7.
- Rosenbaum M. Crime and punishment—the suicide pact. Arch Gen Psychiatry 1983;40:979-82.
- Lasczkowski G, Rohrich J, Bratzke H. Suicidal excess--presentation of an unusual case. Arch Kriminol 1998;202:100-8.
- Brown M, Barraclough B. Partners in life and in death: the suicide pact in England and Wales 1988-1992. *Psychol Med* 1999;29:1299-306.
- Fishbain DA, Aldrich TE. Suicide pacts: international comparisons. *J Clin Psychiatry* 1985;46:11-5.
- 10 Rosen BK. Suicide pacts: a review. Psychol Med 1981;11:525-33.
- 11 Salih MA. Suicide pact in a setting of Folie a Deux. Br J Psychiatry 1981;139:62-7.
- 12 Thompson S. The internet and its potential influence on suicide. Psychiatr Bull 1999;23:449-51.
- 13 Becker K, Mayer M, Nagenborg M, El-Faddagh M, Schmidt MH. Parasuicide online: Can suicide websites trigger suicidal behaviour in predisposed adolescents? Nord J Psychiatry 2004;58:111-4.

## Benign parotid tumours

Can be removed safely by extra-capsular dissection, a less invasive procedure

ll surgical disciplines have moved towards subspecialisation with the development of less invasive procedures and reduction in surgical morbidity. The difficulty with salivary tumours is that they are rare and have a long clinical course that requires follow up data for a decade or more. Prospective randomised trials have therefore not been undertaken, and progress happens slowly, with new generations of surgeons building on the experience of their peers.

Improved methods of assessment (magnetic resonance imaging, computed tomography, ultrasound, and fine needle aspiration biopsy) have had a major impact on salivary gland surgery because of increased confidence in distinguishing benign from malignant tumours. Of discrete lumps, only 5% will prove to be malignant, and over half of these can be recognised on clinical examination alone.1 The addition of modern techniques for investigation reduces further the risk of inadvertently encountering a malignant neoplasm. This then avoids the traditional "one approach fits all" attitude to parotid surgery.

Most benign parotid tumours are either pleomorphic adenomas (71%) or Warthin's tumours (22%).<sup>2</sup> Unfortunately pleomorphic adenoma has a reputation for recurrence that has lingered since the 1940s and 50s. The nature of pleomorphic adenoma was then unclear for, as its name implies, it has a variable appearance and so was thought to be a hamartoma rather than a neoplasm. Treatment was by crude enucleation, and in some centres the tumour capsule was even left in situ, with obvious consequences. The reputation of the tumour for recurrence was given further credence in 1958 by Patey and Thackray's work,3 which showed an incomplete capsule through which small buds of tumour protruded. This was the rationale for the traditional superficial parotidectomy. The technique was promoted by Hamilton Bailey and others as

BMI 2004:329:1299-300